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Implementation of the proposals for action of the Intergovernmental Panel on Forests/Intergovernmental Forum on Forests and the plan of action of the United Nations Forum on Forests: progress in implementation

Traditional forest-related knowledge

Report of the Secretary-General

Summary

The international community has recognized the contribution of traditional knowledge to sustainable forest management. The present report presents an overview of actions taken both nationally and regionally in response to the proposals for action of the Intergovernmental Panel on Forests and the Intergovernmental Forum on Forests and identifies related issues. The report recognizes the importance of inventorying, cataloguing, analysing and applying traditional forest-related knowledge in order to maximize its contribution to sustainable forest management. Progress has been made in this respect. Efforts are being made to directly involve holders of traditional forest-related knowledge in decision-making on forests through adaptive approaches. Policies, projects and programmes are exploring solutions to common problems by creating synergies between traditional forest-related knowledge and modern scientific knowledge. Furthermore, the effective engagement of local and indigenous communities in sustainable development initiatives has been found to contribute to the development and long-term application of sound technologies based on traditional forest-related knowledge. Several constraints have been identified to the protection, transfer and application of traditional forest-related knowledge and to the equitable sharing of the benefits from its use. Concerted action is needed by countries and the international community to overcome these constraints.

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I. Introduction

1. The multi-year programme of work of the United Nations Forum on Forests, adopted at its first session,[1] includes "traditional forest-related knowledge" on the agenda of the fourth session. The multi-year programme of work calls for reviewing the status of implementation of related proposals for action of the Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF) and a discussion of their means of implementation, and relevant "common items"[2] of the United Nations Forum on Forests.

2. The draft of the present report was prepared by the secretariat of the Convention on Biological Diversity, in cooperation with the member organizations of the Collaborative Partnership on Forests. Sources of information used for the preparation of the report included: national reports submitted for the fourth session of the United Nations Forum on Forests; information from members of the Collaborative Partnership on Forests; national and thematic reports on forest ecosystems submitted in 2001 to the secretariat of the Convention on Biological Diversity; voluntary national reports on "management of forest biodiversity, sustainable use to derive products and services, and benefit-sharing" submitted to the secretariat of the Convention on Biological Diversity in 2002;[3] a composite report prepared for the Convention on Biological Diversity on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities relevant to the conservation and sustainable use of biodiversity;[4] reports from relevant organization- and country-led initiatives on IPF/IFF proposals for action on traditional forest-related knowledge; and information on traditional forest-related knowledge derived from the scientific and technical literature.

3. The present report uses the following definition of traditional forest-related knowledge: a cumulative body of knowledge, practice and belief, handed down through generations by cultural transmission and evolving by adaptive processes, about the relationships of living beings (including humans) with one another and with their forest environment.[5] Implicit to the definition are two important issues: (a) that traditional forest-related knowledge can be effectively used to understand and sometimes predict forest-related events upon which the livelihood or even survival of individuals depend; (b) that traditional forest-related knowledge is a holistic and dynamic process that changes with the availability of resources, demands of local communities, and interaction with various sectors of society.

II. Background

4. The international community has recognized the contribution of traditional knowledge to sustainable forest management as well as to the broader goals of sustainable development, including the conservation of biological diversity. The importance of traditional knowledge was recognized in the "Forest Principles"[6] and chapters 11 (Combating deforestation) and 26 (Recognizing and strengthening the role of indigenous people and their communities) of Agenda 21 adopted at the United Nations Conference on Environment and Development in 1992.

5. The Forest Principles recognized the importance of traditional uses of forests to sustainable forest management and to the livelihoods and cultural and social values of indigenous people, other forest dwellers and local communities. The

Forest Principles called for recognition of and support for the rights of these people and communities; the recording, development and use of appropriate indigenous capacity and local knowledge; and equitable sharing of the benefits arising from use of the knowledge. These principles were reflected in chapter 11 of Agenda 21.

6. In the intergovernmental forest process following the United Nations Conference on Environment and Development, both IPF and IFF dealt with traditional forest-related knowledge as a separate programme element. The International Meeting of Indigenous and Other Forest-dependent Peoples on the Management, Conservation and Sustainable Development of All Types of Forests was held in Leticia, Colombia, in December 1996, in support of IPF. The objective of the meeting was to formulate proposals for action on matters related to indigenous peoples and other forest-dependent people. The main output of the initiative was the Leticia Declaration, which calls on Governments, intergovernmental organizations and non-governmental organizations to recognize and take into account the rights, values, and viewpoints of indigenous and forest-dependent peoples, including traditional forest-related knowledge.

7. IPF and IFF agreed on a number of proposals for action related to traditional forest-related knowledge. These are listed, clustered and summarized in table 1. The summaries are neither negotiated text nor are they meant to replace negotiated text; they are provided to facilitate the analysis of the implementation of the IPF/IFF proposals for action.

Table 1
IPF/IFF proposals for action related to traditional forestry-related knowledge

Type of action called for	*Proposal(s) for action* *IPF: E/CN.17/1997/12* *IFF: E/CN.17/2000/14*
Advance the use of traditional forest-related knowledge for sustainable forest management	IPF: paras. 40 (a) and (b) and (g)-(n)
With the participation of indigenous people and local communities who possess traditional forest-related knowledge, inventory, catalogue, retrieve and apply traditional forest-related knowledge for sustainable forest management	IFF: para. 75
Develop intellectual property rights for traditional forest-related knowledge and promote equitable benefit-sharing	IPF: paras. 40 (c), (d) and (f) and 40 (o)-(r) IFF: paras. 74 (a)-(d)
Develop ways and means to promote effective protection of traditional forest-related knowledge and work with relevant international organizations and conduct studies to help to develop a common appreciation and understanding of the relationship between traditional forest-related knowledge and intellectual property rights and promote fair and equitable sharing of benefits arising from traditional forest-related knowledge, including consideration of payments	

Type of action called for	*Proposal(s) for action* *IPF: E/CN.17/1997/12* *IFF: E/CN.17/2000/14*
Technology transfer and capacity-building	IPF: para. 17 (g)
Promote participation of people who possess traditional forest-related knowledge in the planning, development and implementation of national forest policies and programmes	IPF: para. 40 (e)

8. The United Nations Forum on Forests Ad Hoc Expert Group on Finance and Transfer of Environmentally Sound Technologies, which met at Geneva from 15 to 19 December 2003, also recognized that technologies based on the traditional knowledge of indigenous and local forest communities may be a key ingredient of sustainable forest management. It further recognized that the effective engagement of these communities in sustainable development initiatives can contribute greatly to the development and long-term application of environmentally sound technologies (see E/CN.18/2004/5).

9. The value of traditional knowledge to the conservation of biological diversity has also been affirmed in article 8 (j) of the Convention on Biological Diversity.[7] The expanded programme of work on forest biological diversity adopted in 2002 by the Conference of the Parties to the Convention includes activities aimed at enabling indigenous and local communities to develop and implement management systems to conserve and sustainably use forest biological diversity.

III. Progress in the implementation of the IPF/IFF proposals for action related to traditional forest-related knowledge

10. The following section focuses on progress achieved in implementation of the IPF/IFF proposals for action indicated in table 1. It provides a brief overview of progress in implementation by countries, non-governmental and multilateral organizations, research centres, universities, and forest-related stakeholders.

A. Advancing the use of traditional forest-related knowledge for sustainable forest management

1. Inventorying and cataloguing

11. Ethno-biological knowledge has been extensively documented in many countries. The inventorying and cataloguing of traditional forest-related knowledge related to forest resource management and use is less developed, however, although there are several examples of countries in which significant progress is being made.

12. The application of traditional forest-related knowledge for achieving sustainable forest management is particularly well developed in areas with long histories of human settlement. In China, for example, traditional forest-related knowledge plays a crucial role, and there are extensive programmes for cataloguing traditional forest-related knowledge and measures that encourage communities to

maintain traditional forest-related knowledge. In India, the programme "People's Biodiversity Registers",[8] which operates across 52 localities in eight states, attempts to create formal institutions for the maintenance of traditional knowledge and to document how rural and forest-dwelling communities understand living organisms and their ecological setting. The World Agroforestry Centre Agroforestree Database provides information on the management, use and ecology of a wide range of tree species that can be used in agroforestry systems, most of which are based on traditional knowledge.

13. Traditional knowledge registries or databases that include traditional forest-related knowledge have also been developed in Australia, Canada, India, New Zealand, Peru, the Philippines, and the South Pacific region. Most have been compiled by communities or community groups for their own benefit. These registers can serve a number of purposes, including:

(a) To maintain and preserve knowledge;[9]

(b) To raise awareness of communities with respect to the values of traditional knowledge;

(c) To encourage the long-term management, conservation and promotion of natural resources;

(d) To promote information exchange among interested parties.

14. Resource mapping of landscapes familiar to local people helps to identify areas with outstanding biological and cultural significance from the viewpoint of the local communities. Pilot inventorying and surveying methods that explicitly include the knowledge of indigenous and local forest communities in woodland landscape functions and biodiversity assessments have been tested in Indonesia and Mozambique by the Center for International Forestry Research (CIFOR) as a basis for integrating community involvement into sustainable forest management plans.[10] Incorporation of traditional forest-related knowledge into geographic information systems for management planning purposes has been undertaken in some of Canada's Model Forests.

15. There is a need to strengthen capabilities and standardize methodologies for cataloguing traditional forest-related knowledge, particularly in those countries in which local and national systems for cataloguing and preserving traditional forest-related knowledge are currently in the initial stage of development. Traditional forest-related knowledge is built through long-term exposure of people to natural conditions and events, and thus may be seen as a library of information rather than simply "mere data".

2. Application of traditional forest-related knowledge for sustainable forest management

16. Many countries are developing methodologies to facilitate the integration of traditional forest-related knowledge into sustainable forest management. For example, Canada's Model Forest programme offers opportunities for aboriginal communities to incorporate traditional forest-related knowledge into forest management plans, and many of these communities have used traditional forest-related knowledge in the development of contemporary forest industry. In Indonesia, traditional forest-related knowledge was critical in designing sustainable

management systems for mangrove forests.[11] European communities use traditional forest-related knowledge in the conservation of species, coppice management, and construction and restoration of old wooden houses. Since 1990, the Joint Forest Management Programme in India developed cooperative agreements between village communities and the local Forest Department to protect a particular area of (state-owned) forestland and share the forest products. It is estimated that about 1.5 million hectares of forest are under joint forest management. Joint forest management formally taps into local knowledge and action.[12] In Africa, several Nigerian community forest reserves managed by indigenous people directly apply traditional knowledge practices.

17. Some small forest holders, local communities and indigenous groups have managed their forests and forest fallows for a long time as a source of protein (e.g., bushmeat), medicine, fruit, and timber, changing their management techniques as the forest fallows age. Some indigenous groups, for example, the Kayapo in Brazil, West African Kissidougou, and Runa Indians in Ecuador use their knowledge of forest succession to create forest islands to provide for their consumption needs.

18. The efforts of forest restoration and rehabilitation initiatives have also drawn upon traditional forest-related knowledge. The International Tropical Timber Organization (ITTO) guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests[13] include traditional knowledge in their principles. Forest restoration and rehabilitation activities in the Indian central Himalaya and southern China have used local knowledge in the selection of species and implementation of strategies to rehabilitate the land. This approach is more likely to succeed than previous rehabilitation efforts that did not take into account local needs.[14]

19. In some instances, however, the application of traditional forest-related knowledge alone may not be sufficient for attaining sustainable forest management on a larger scale. In Ecuador, because indigenous and local communities possessed traditional forest-related knowledge about the positive influence on some crops of localized fog capture by nearby forests, forest resource managers were able to understand better the importance of fog capture for water supply at the watershed level. This led to the conservation of forests that otherwise might have been converted to agriculture. Here, modern science was able to apply local knowledge to water conservation and forest management at the landscape scale. In this case neither traditional forest-related knowledge nor modern scientific knowledge alone was sufficient to guarantee maintenance of the forest cover in this locality. A sustainable solution was found in a combination of the two.[15]

20. It should be noted that application of traditional forest-related knowledge is sometimes suitable only for specific situations. At least in the tropics, the demands of sustainable forest management practices that are both socially appropriate and silviculturally effective can be satisfied in some cases by integrating, for example, "slash-and-burn" farming systems, as this pre-colonial land use practice is thought to have influenced current stand structure and composition of many forested locations.[16] Based on observations, high-intensity (but localized) disturbances that reflect traditional practices of farming are being applied, for example, in Bolivia's dry forests destined to sustainable timber production.[17] A similar approach is also being recommended for regenerating mahogany in Mayan forest stands, many of which are managed by local communities.[18]

3. Protection of traditional forest-related knowledge and promotion of equitable benefit-sharing

21. The ability of the indigenous people and local communities to maintain and enhance traditional forest-related knowledge relies to a large extent on creating opportunities for them to participate in forest-related decision-making. Effective protection of traditional forest-related knowledge relies to a large extent on government recognition of the rights of forest-dependent indigenous and local people and their contribution to sustainable forest management.

22. Both IPF and IFF have emphasized the need for better understanding the relationship between intellectual property rights and traditional forest-related knowledge, and to further explore options for supporting the application of intellectual property rights and/or other protection regimes for traditional forest-related knowledge and fair and equitable benefit-sharing from it. The results of a 2000 survey undertaken for the World Intellectual Property Organization's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, reveal two general approaches to the protection of traditional biodiversity-related knowledge (including traditional forest-related knowledge).[19] On the one hand, many countries believe that the current system of intellectual property rights adequately provides for the protection of traditional knowledge, and that no new system is necessary. On the other hand, a number of countries have pointed to various inadequacies in the system and therefore have either adopted or are in the process of drafting a sui generis system.[20] The survey contains 48 responses, with over half indicating that existing intellectual property rights can be used to protect traditional knowledge.[20]

23. Sui generis solutions show considerable variation. In assessing existing indigenous, local, national, regional and international sui generis systems for the protection of traditional knowledge, including traditional forest-related knowledge, it is clear that at least five approaches have been adopted or proposed in the development of such systems. These approaches can be briefly summarized as follows:

(a) Use of an existing suite of intellectual property rights laws with some modifications;

(b) A comprehensive sui generis system addressing issues of ownership and access to traditional knowledge, usually within a regime governing access to genetic resources and benefit-sharing;

(c) A comprehensive sui generis cultural heritage protection law based on a holistic approach to the protection of traditional cultural expressions, expressions of folklore, and traditional knowledge that incorporates, or can be extended to incorporate, provisions for the protection of traditional knowledge, innovations and practices;

(d) A comprehensive indigenous/local community rights law that deals with such issues as land rights, community governance, etc., but also incorporates provisions for the protection of traditional knowledge and access to genetic resources;

(e) A comprehensive national legislative, administrative and policy framework for the management, conservation and sustainable development of

natural resources, which incorporates provisions for the protection of traditional knowledge.

24. Indigenous and local communities have adopted a number of systems and strategies for handling and managing their innovations. These include using existing intellectual property laws, particularly those regarding trademarks and geographic indicators. Many indigenous and local communities, or organizations that represent them, have also established community-based registers of traditional knowledge, innovations and practices. Other strategies include the development of community-generated codes of ethics and protocols to govern any research undertaken by outsiders, which usually contain provisions for protection of confidentiality of information, conditions for publication of information, and sharing of benefits.

4. Emerging issues

25. Traditional forest-related knowledge may sometimes be applied on a larger scale than the local level in which it is practised. Thus, "scaling up" is being recognized by modern scientists as a way of promoting sustainability and ultimately cultural survival at larger spatial scales.

26. There is a growing interest in traditional forest-related knowledge-related research. However, any such research programme must demonstrate that its findings would accrue benefits to those communities and people who hold the traditional knowledge to begin with. Knowledge extraction therefore should be accompanied by a fair and equitable system of benefit-sharing. In addition, the definition of one community or group as holders of traditional knowledge must not be a pretext to deny that community access to modern knowledge on the grounds that traditional knowledge will be lost. A number of initiatives are improving international communication and facilitating the exchange of experience and expertise.[21]

27. The recent recognition of the special needs and values of forests which are considered sacred grounds and/or have been traditionally occupied by indigenous communities emerges with concurrent attempts at developing management guidelines. The need for planning and management of sacred sites and indigenous territories was discussed at the third meeting of the Convention on Biological Diversity Ad Hoc Open-Ended Intersessional Working Group on Article 8 (j), in December 2003.[22] Spiritual values of forests are also addressed in the report of the Secretary-General on social and cultural aspects of forests prepared for the fourth session of the Forum (E/CN.18/2004/8).

B. Means of implementation: technology transfer and capacity-building

28. The transfer of environmentally sound technologies raises a number of important issues with regard to traditional forest-related knowledge, including the impact of transferring modern forest-management technologies on traditional forest-related knowledge, and the modalities of transfer of technologies that are based on traditional forest-related knowledge.

29. Although technology is often crucial for the development of the forest sector, the current level of technology transfer, in particular to developing countries and countries with economies in transition, is constrained by infrastructure and capacity

limitations in the recipient countries as well as legal, administrative, institutional and policy barriers existing in the source countries.

30. An important issue is how the transfer of new, modern technology may affect the livelihoods of local and indigenous communities. Potential negative impacts of the transfer of these technologies on the livelihoods of indigenous and local communities may in turn have adverse consequences for the preservation and maintenance of traditional forest-related knowledge itself.[23] One of the major challenges of technology transfer to indigenous and local forest communities is how to incorporate new technologies into their cultures so that their traditional values can be maintained, if not enhanced, and so that the new technologies enable a more productive and sustainable relationship with the environment. In order to avoid negative consequences of technology transfer, the possible adverse impacts on traditional livelihoods need to be considered when developing legal, administrative and policy mechanisms for technology transfer at the national, regional and international levels.

31. Technologies derived from traditional forest-related knowledge, as well as modern environmentally sound technologies, can be transferred. In this regard, it is important that forest information systems for technology transfer and cooperation be closely linked to local and traditional forest communities. Such linking may be important for identifying and disseminating information on options for the transfer of traditional technologies.

C. Common items: promotion of the participation of people possessing traditional forest-related knowledge in decision-making processes

32. Integrated participatory application of the principles of sustainable forest management is more and more commonly applied. Several projects have been successful. Examples include the following:

(a) The Management Plans of the Waza National Park and the Dja Reserve in Cameroon have made provisions for the involvement of local communities in the management committee of the reserves;

(b) The National Initiative Working Group in New Zealand, established to administer and manage a system of national standards for sustainable forest management, includes a Maori chamber allowing them to provide input into the development of management strategies and policies;

(c) The Project for the Integrated Management of Andean Ecosystems brings together provincial and local authorities, the indigenous community and the local university in an initiative to sustainably manage the natural resource base of communal lands in the Cajamarca Valley in northern Peru for the social and economic benefit of the region's indigenous people;

(d) Wildlife management boards are a relatively common means in North America for integrating traditional knowledge into resource management through the participation of indigenous peoples. There are also a number of indigenous councils and government agencies responsible for environmental management that likely include traditional knowledge in their deliberations. One of the most effective

courses for the use of traditional knowledge — including traditional forest-related knowledge — in project management and in the management of protected areas is close cooperation between local populations and the managing authorities on an equal footing, guaranteeing local populations a full and effective role in policy- and decision-making.

33. While greater efforts are being made to include indigenous people in decision-making processes, there are still many situations where indigenous people are sidelined. Even where indigenous peoples have been included, for example in some co-management arrangements, concerns have been expressed that non-indigenous people dominate. There is therefore still a need to ensure that participants recognize indigenous knowledge as a valid source of information to draw upon when management planning is being undertaken at the local level.

IV. Conclusions

34. **Forest management systems based on traditional forest-related knowledge and often on small scales are not sufficiently recognized by researchers, managers, and policy makers. More standardized and systematic inventorying and cataloguing of traditional forest-related knowledge could lead to increased recognition by the modern scientific community and policy makers of contribution of traditional forest-related knowledge to sustainable forest management and to the well-being of forest-dependent people.**

35. **Policies, projects and programmes to create synergies between traditional forest-related knowledge and modern scientific knowledge are needed for exploring solutions to common problems. Although there have been some successes in integrating traditional forest-related knowledge into formal forest management planning, several constraints have also been encountered. The constraints include: inability to access traditional forest-related knowledge efficiently and effectively; lack of methods for integrating the two and insufficient use of existing methods, such as adaptive management; and insufficient communication between the holders of traditional forest-related knowledge and potential users of traditional forest-related knowledge.**

36. **Efforts in directly involving holders of traditional forest-related knowledge in management decisions through community-based, adaptive approaches could result in improved decision-making related to preservation of traditional forest-related knowledge and their contributions to sustainable forest management. The incorporation of traditional forest-related knowledge and the participation of holders of traditional forest-related knowledge in monitoring, assessment and reporting on forests may improve forest management information, help guide management decisions, and enhance benefit-sharing.**

37. **There has been some progress in the development of sui generis systems for the protection of traditional forest-related knowledge at the national and regional levels. However, some issues of sui generis systems need further consideration.[24] These include the international dimension of the protection of traditional knowledge, and the potential use of registries or databases as tools to assist in the protection of traditional knowledge.**

V. Points for discussion

38. The United Nations Forum on Forests may wish:

(a) To urge countries to continue to take necessary action to further safeguard property rights of indigenous people and local communities as a way of preserving traditional forest-related knowledge, including further development of national legislation aimed at protecting, promoting and facilitating the use of traditional forest-related knowledge and effective enforcement of such legislation;

(b) To call upon countries and regional and international organizations to further consider sui generis systems or other relevant systems in order to protect traditional forest-related knowledge as well as to ensure the fair and equitable sharing of benefits arising from the utilization of such knowledge;

(c) To urge countries to integrate traditional forest-related knowledge into formal education schemes in order to increase awareness and understanding and to help preserve and promote further application of this knowledge for forest management purposes;

(d) To invite the member organizations of the Collaborative Partnership on Forests to support national and regional actions that promote the preservation of traditional forest-related knowledge and its application in sustainable forest management;

(e) To urge countries and invite member organizations of the Collaborative Partnership on Forests and other relevant international organizations to work to strengthen communication and dialogue between holders of scientific forest-related knowledge and traditional forest-related knowledge, and to initiate joint research programmes that seek to evaluate and further develop the integration of scientific forest-related knowledge and traditional forest-related knowledge;

(f) To invite relevant organizations and stakeholders to consider the development of regional strategies to support traditional forest-related knowledge as a tool for sustainable forest management.

Notes

[1] See *Official Records of the Economic and Social Council, 2001, Supplement No. 22* (E/2001/42/Rev.1-E/CN.18/2001/3/Rev.1), part two, sect. B, resolution 1/1.

[2] The common items of the Forum are: multi-stakeholder dialogue; enhanced cooperation and policy and programme coordination, inter alia, with the Collaborative Partnership on Forests; country experiences and lessons learned; emerging issues relevant to country implementation; intersessional work; monitoring, assessment and reporting; implementation of the Plan of Action; promoting public participation; national forest programmes; trade; and enabling environment.

[3] Document UNEP/CBD/SBSTTA/9/9/Add.1 (see: www.biodiv.org).

[4] Document UNEP/CBD/WG8J/3/4 (see: www.biodiv.org).

[5] Adapted from F. Berkes, J. Colding, and C. Folke. "Rediscovery of traditional ecological knowledge as adaptive management". *Ecological Applications* 10:1251-1262 (2000).

[6] The full official name is the "Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests" (see *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. III, annex III).

[7] Under article 8 (j), each Contracting Party shall, as far as possible and as appropriate:
(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

[8] As part of the Biodiversity Conservation Prioritization Project of the World Wildlife Fund for Nature-India.

[9] Some countries have even noted that neglecting to document traditional knowledge has contributed to their erosion (e.g., Namibia).

[10] Sheil, D., et al. *Exploring biological diversity, environment and local people's perspectives in forest landscapes* (CIFOR, Bogor, Indonesia, 2002); and Lynam, T., et al. *Assessment of the value of woodland landscape function to local communities in Gorongosa and Muanza Districts, Sofala Province, Mozambique* (Center for International Forestry Research, Bogor, Indonesia, 2003).

[11] "Transfer of Environmentally Sound Technologies for the Sustainable Management of Mangrove Forests: An Overview", background document for the Ad Hoc Expert Group on Finance and Transfer of Environmentally Sound Technologies (see: www.un.org/esa/forests/adhoc-finance.html).

[12] Sundar, N., "The construction and destruction of 'indigenous' knowledge in India's Joint Forest Management Programme", in: *Cultural and Spiritual Values of Biodiversity* (United Nations Environment Programme, Nairobi, 1999).

[13] ITTO Policy Development Series No. 13.

[14] Saxena, K. G., et al. *Conservation Ecology*, vol. 5, issue 2 (2001) (see: www.consecol.org/vol5/iss2/art14); and Dachang, L., "Rehabilitation of degraded forests to improve livelihoods of poor farmers in southern China" (Center for International Forestry Research, Bogor, Indonesia, 2003).

[15] Becker, C. D. and K. Ghimire. "Synergy between traditional ecological knowledge and conservation science supports forest preservation in Ecuador", *Conservation Ecology*, vol. 8, issue 1 (2003) (see: www.consecol.org/vol8/iss1/art1).

[16] Evidenced by the presence of extensive *terra preta* soils (which are indicators of ancient slash and burn activities) that currently underlie many old-growth forest stands in Bolivian Amazonia and Cameroon (see *Journal of Biogeography*, vol. 30, issue 9: 1381-1390 [2003]).

[17] Putz, F. E., et al. "Forest science and the BOLFOR experience: lessons learned about natural forest management in Bolivia", in: D. Zarin, F. E. Putz, M. Schmink, and J. Alavalapati (eds.), *Working Forests in the Tropics: Conservation through Sustainable Management?* (New York, Columbia University Press. *In press*).

[18] Negreros, P., L. K. Snook, and C. W. Mize, 2003. "Regenerating mahogany (*Swietenia macrophylla*) from seed in Quintana Roo, Mexico", *Forest Ecology and Management*, vol. 183: 351-362.

[19] WIPO/GRTKF/IC/2/5, "Survey on Existing Forms of Intellectual Property Protection for Traditional Knowledge".

[20] A system specifically designed to address the needs and concerns of a particular issue. Calls for a "sui generis system" for traditional knowledge protection could mean a system entirely distinct from the current intellectual property system, or a system with new intellectual property, or intellectual property-like rights.

[21] UNEP/CBD/WG8J/3/4; and UNEP/CBD/WG8J/3/INF/1.

[22] The Group adopted the Akwé: Kon guidelines, a set of voluntary guidelines for the conduct of cultural, environmental and social impact assessment regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities. The guidelines were forwarded to the seventh meeting of the Conference of the Parties (Kuala Lumpur, Malaysia, February 2004) for final adoption.

[23] McNeely, J. A. "Cultural challenges to technological transfer". Paper presented at the Norway/ United Nations Conference on Technology Transfer and Capacity-Building, held in Trondheim, Norway, in June 2003.

[24] At its third meeting, the Ad Hoc Open-Ended Intersessional Working Group on Article 8 (j) and related provisions of the Convention on Biological Diversity examined the issue of sui generis systems and prepared recommendations to the seventh meeting of the Conference of the Parties, in February 2004, to carry out further work on this issue, in particular to further develop elements for sui generis systems. The issue of sui generis systems for the protection of traditional knowledge is also being examined by the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore.